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(74) Representative:

**(54) CURRENT-VOLTAGE  
 CONVERSION CIRCUIT**

(57) Abstract:

**PROBLEM TO BE SOLVED:** To provide a current-voltage conversion circuit that provides a small output error similar to the case with a small input current even when the input current is high.

**SOLUTION:** In the case of the read mode, an output of a differential amplifier 3 is negatively fed back to an inverting input terminal via a 1st switch 5 and an I-V conversion resistor 4a. On the other hand, a reference voltage  $V_{REF}$  is fed to a noninverting input terminal via an offset compensation resistor 6a whose resistance is the same as that of the resistor 4a and a 2nd switch 7. In the write mode, both the switches 5, 7 are switched interlocking with each other to select an I-V conversion resistor 4b and an offset compensation resistor 6b whose resistance is the same as that of the resistor 4b. In any of the modes, no saturated transistors (TRs) are in existence in a negative feedback loop. Moreover, a voltage at the noninverting input terminal is adjusted depending on the selected I-V conversion resistor. As a result, an output error is reduced independently of the gain.

